Office Action. It is noted that the rejections set forth in 4/10/02 Office Action did not rely on Fawcett. Furthermore, the current Action introduces Fawcett for the first time as a relied upon reference in the rejection of the claims under 35 U.S.C. 103. In this regard, Applicant respectfully requests that the final nature of the action be withdrawn.

REJECTION OF CLAIMS UNDER 35 U.S.C. 103(a)

Claims 2, 4-14, 16-18, 20, 22-25, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable for the reasons set forth on pages 5 through 18 of the Action. Specifically, claims 2, 4-14, 16-18, 20, 22-25, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiawei Han ("Towards On-Line Analytical Mining in Large Databases", hereinafter the Han reference) in view of Tuzhilin, US 6,236,978 (hereinafter Tuzhilin) further in view of Fawcett et al., US 5,790,645 (hereinafter Fawcett).

Applicant respectfully traverses the rejections to the claims and requests reconsideration and reexamination of the application for the reasons that follow.

Applicant respectfully disagrees with the Action's position. It is respectfully submitted that the Han reference, whether alone or in combination with the Tuzhilin reference and the Fawcett reference, fails to

teach or suggest the telecommunication fraud detection method and system, as claimed.

Fawcett Reference

Fawcett is relied upon for teaching detecting telecommunication fraud. Specifically, col. 2, lines 46-52, col. 7, lines 30-32, Abstract and FIGS. 3-5 are relied upon for teaching various claimed aspects of claims 3, 28, 30. As described in greater detail hereinafter, it is respectfully submitted that the Fawcett reference, whether alone or in combination with the Tuzhilin reference and the Han reference, fails to teach or suggest the telecommunication fraud detection method and system, as claimed.

Claim 27

Page 6 of the Action states that the Han reference teaches the step of generating a calling profile cube that includes information on multiple customers. Specifically, FIG. 1, and page 3, paragraph 4 of Han are referenced. The data cube illustrated in Han and related description on page 3 describes a generic data cube or cuboid, but does not fairly teach or suggest "a calling profile cube that includes information on multiple customers," as claimed.

Page 6 of the Action further cites the Tuzhilin reference for teaching those steps (described in

paragraphs 2-4 of page 6 of the Action) that are not taught by the Han reference. In particular, FIGS. 1-3 and col. 3, lines 40-41 are cited as teaching the step of "generating a volume-based calling pattern for each individual customer based on the multi-customer calling profile," as claimed.

First, the Tuzhilin reference fails to teach or suggest that the volume-based calling pattern for each individual customer is generated based on the multi-customer calling profile as claimed.

For example, FIG. 1 of the Tuzhilin reference is directed to a general flowchart having the following steps: 1) retrieve user's past purchasing history, 2) build user profile based on (1) and 3) complete process when profile complete. (See Col. 3, lines 36 to 40). FIG. 2 provides more details in which a static profile and a dynamic profile are built for each user. FIG. 3 illustrates specific steps, such as, the step of compressing dynamic rules (step 35), generating aggregate rules (40), validating the aggregate rules by human expert (45) and validating individual rules (60). Furthermore, col. 3, lines 31-37 of the Tuzhilin reference is directed at building a "user's past purchasing history."

Based on the foregoing, it is respectfully noted that the Tuzhilin approach is different from the method as claimed. Furthermore, the figures and related description

of the Tuzhilin reference do not fairly teach or suggest the step of "generating a volume-based calling pattern for each individual customer based on the multi-customer calling profile," as claimed.

The Action further refers to FIGS. 1-3, col. 11, line 65, and col. 3, line 40-41 of Tuzhilin as teaching the step of "comparing the volume-based calling pattern for each customer to a predetermined fraudulent volume-based calling pattern."

The above-noted cited portions appear to be directed to using the purchasing history of a user (provided by Purchasing History Storage Unit 120), a user's profile (provided by User Profile Generation 110) and external information about the user (provided by State of the User Module 160) to estimate a user's future purchasing needs (col. 11, lines 42-52).

This User Estimated Purchasing Needs module 140 and its operation is not the same nor does it teach or suggest the step of "comparing the volume-based calling pattern for each customer to a predetermined fraudulent volume-based calling pattern," as claimed.

Claim 28

For example, with reference to new claim 28, the references, whether alone or in combination, fail to teach or suggest the step "generating a probability-based

calling pattern cube based on the volume-based calling pattern cube for each individual customer," and the step of "comparing the probability-based calling pattern cube for each customer to a predetermined fraudulent probability-based calling pattern," as claimed.

On page 11 of the Action, Fawcett's FIGS. 3-5 and the Abstract are cited for teaching the above-noted claim limitations. However, the cited references have been reviewed, and no teaching of the above-noted claims limitations directed to probability-based calling pattern cube was found.

In this regard, it is respectfully requested that the Action specifically point out those portions of the cited references that teach or suggest the generation and use of probability-based calling pattern cubes as claimed.

Furthermore, the references, whether alone or in combination, fail to teach or suggest the step of when the probability-based calling pattern cube is in a first predetermined relationship with predetermined fraudulent probability-based calling pattern, performing a first action," as claimed.

On page 11, the Action appears to cite Fawcett as teaching the generation and use of probability-based calling pattern cube as claimed. However, the Fawcett system does not teach or suggest probability-based calling pattern cube.

The Abstract, for example, describes the Fawcett technique as a fraud detection system that uses machine learning methods. Rule learning is used to uncover indicators of fraudulent behavior. The indicators are used to create profilers that are then used to generate high confidence intervention activities. FIGS. 3 to 5 of Fawcett are directed to a generic use of the fraud detection system, a flow diagram for the selection of rules used in the profiler templates to instantiate the profilers, and a generated fraud detection system operating on exemplary customer account-day data, respectively.

The above cited portions and Col. 7, lines 30-32 of Fawcett fail to teach or suggest the generation or use of a probability-based calling pattern cube as claimed.

Claim 30

Han page 7, section 3.4 is directed to Mining Periodicity Patterns and does not teach or suggest the generation or use of a probability-based calling pattern cube as claimed.

Similarly, Tuzhilin, FIG. 3, col. 2, lines 41-67 is directed to "dynamic profiles to provide better recommendation to users as to which products and services each individual user can use" and does not teach or suggest the generation or use of a probability-based

calling pattern cube as claimed. It is noted that FIG. 3 illustrates how individual rules are compressed, used to generate aggregate rules, which are validated, and how individual rules are validated and is also is not directed to the generation or use of a probability-based calling pattern cube as claimed.

Claim 20

Claim 20 was amended to recite, "utilizing an OLAP server to create a calling profile cube, updated calling profile cubes, derive calling pattern cubes from the calling profile cube, analyzing calling pattern cubes, and comparing calling pattern cubes," and "wherein OLAP programming supported by the OLAP server provides a scalable computation engine for generating and processing the calling pattern cubes." It is respectfully asserted that Han, whether alone or in combination with Tuzhilin and Fawcett, fails to teach or suggest these limitations as claimed.

The current Action does not appear to address these limitations. In this regard, it is respectfully requested that the next Action address this amended claim.

Accordingly, it is respectfully submitted that the Han reference, whether alone or in combination with the Tuzhilin reference and the Fawcett reference, fails to

teach or suggest the telecommunication fraud detection method and system, as claimed.

Applicant graciously acknowledges the allowable subject matter as set forth on pages 19 and 20.

In view of the foregoing, it is respectfully submitted that all pending claims of the present invention are now in condition for allowance. Reexamination and reconsideration of the pending claims are requested and allowance at an early date solicited. The Examiner is invited to telephone the undersigned if he has any suggestions, thoughts or comments, which might expedite the prosecution of this case.

Respectfully submitted,

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Dated: December 10, 2002
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231 on the date below.

Eric Ho

Eric Ho (RN 39,711) December 10, 2002 (Date)